

PATENT CLAIMS

1. Optical biopsy instrument (100), comprising
 - (a) a substantially cylindrical cannula (22) with a proximal end (24) and a distal end (26), said cannula (22) having at least one lateral opening (28), and
 - (b) an endoscope (10) which is axially movable inside the cannula (22).
2. Optical biopsy instrument (100) according to claim 1, **characterized in** that the at least one lateral opening (28) of the cannula (22) has at least in parts a cutting region (30) at its area being directed towards the distal end (26) and/or at its area being directed towards the proximal end (24).
3. Optical biopsy instrument (100) according to claim 2, **characterized in** that the cutting region (30) is formed by a ground edge of the circumference of the at least one lateral opening (28) or by a tothing of the circumference or by both measures concurrently.
4. Optical biopsy instrument (100) according to any one of the preceding claims, characterized in that the at least one lateral opening (28) has a substantially round, oval, elliptic or rectangular configuration.
5. Optical biopsy instrument (100) according to any one of the preceding claims, characterized in that the cannula (22) is closed at its distal end (26) by a wall, in particular by a transparent wall.
6. Optical biopsy instrument (100) according to any one of the preceding claims, characterized in that an external diameter of the endoscope (10) substantially corresponds to an internal diameter of the cannula (22) or is slightly smaller than this.
7. Optical biopsy instrument (100) according to any one of the preceding claims, characterized in that an external diameter of the cannula is 1.2 mm at most.
8. Optical biopsy instrument (100) according to any one of the preceding claims, characterized in that the endoscope (10) is a rigid endoscope or a flexible glass-fibre endoscope.

9. Use of an optical biopsy instrument (100) according to any one of claims 1 to 8 for endoscopy and/or biopsy of duct systems having small diameters, in particular of milk ducts of mammary glands.

5 10. Method for sampling tissue samples in duct systems, wherein

(a) an optical biopsy instrument (100), comprising

– a substantially cylindrical cannula (22) with a proximal end (24) and a distal end (26), said cannula (22) having at least one lateral opening (28), and

10 – an endoscope (10) which is axially movable inside the cannula (22) is introduced, under endoscopic monitoring, into the duct up to a biopsy site,

(b) the tissue sample (34) is brought through the free lying opening (28) into an interior of the cannula (22), and

15 (c) the tissue sample (34) is separated from the rest of the tissue by moving forward the endoscope (10) across the lateral opening (28) and/or by retracting the endoscope (10), until the lateral opening (28) is closed.

11. Method for sampling tissue samples in duct systems, wherein

20 (a) an optical biopsy instrument (100), comprising

– a substantially cylindrical cannula (22) with a proximal end (24) and a distal end (26), said cannula (22) having at least one lateral opening (28), and

25 – an endoscope (10) which is axially movable inside the cannula (22) is introduced, under endoscopic monitoring, into the duct, until the lateral opening (28) comes to lie over a biopsy site,

(b) the tissue sample (34) is brought through the free lying opening (28) into an interior of the cannula (22), and

30 (c) the tissue sample (34) is separated from the rest of the tissue by moving the cannula (22) having a free lying lateral opening (28) together with the fixed endoscope (10) forward or backward, thereby manually exerting a gentle pressure against the tissue sample (34).